

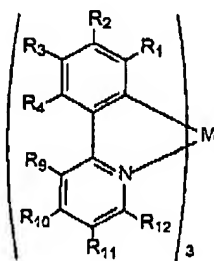
Appl. No. 10/829,011  
 Amdt. Dated November 17, 2005  
 Reply to Office Action of Aug. 18, 2005

**Amendments to the claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims**

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Previously presented) An organic light emitting device comprising an array of pixels defined by a photoresist grid and having a pixel pitch of less than 500  $\mu\text{m}$ , wherein each pixel comprises an emissive layer comprising a phosphorescent emissive material of the formula VII



VII

wherein

M is a metal atom;

each  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^9$ ,  $R^{10}$ ,  $R^{11}$ , and  $R^{12}$  is, independently, H, F, Cl, Br, I, R, OR,  $N(R)_2$ , SR,  $C(O)R$ ,  $C(O)OR$ ,  $C(O)N(R)_2$ , CN,  $NO_2$ ,  $SO_2$ ,  $SOR$ ,  $SO_2R$ ,  $SO_3R$ ; and additionally, or alternatively, any one or more of  $R^1$  and  $R^2$ , or  $R^2$  and  $R^3$ , or  $R^3$  and  $R^4$ , or  $R^9$  and  $R^{10}$ , or  $R^{10}$  and  $R^{11}$ , or  $R^{11}$  and  $R^{12}$ , together form, independently, a fused 4- to 7-member cyclic group, wherein said cyclic group is cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl, and wherein said cyclic group is optionally substituted by one or more substituents X;

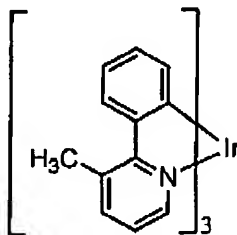
each R is, independently, H,  $C_1$ - $C_{20}$  alkyl,  $C_2$ - $C_{20}$  alkenyl,  $C_2$ - $C_{20}$  alkynyl,  $C_1$ - $C_{20}$  heteroalkyl,  $C_5$ - $C_{40}$  aryl,  $C_5$ - $C_{40}$  heteroaryl, aralkyl; wherein R is optionally substituted by one or more substituents X;

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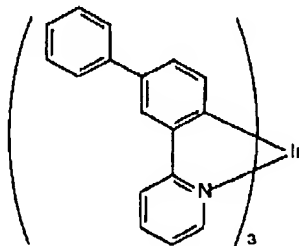
each X is, independently, H, F, Cl, Br, I, R', O R', N(R')<sub>2</sub>, SR', C(O)R', C(O)OR', C(O)N(R')<sub>2</sub>, CN, NO<sub>2</sub>, SO<sub>2</sub>, SOR', SO<sub>2</sub>R', or SO<sub>3</sub>R';

each R' is, independently, H, C<sub>1</sub>-C<sub>20</sub> alkyl, C<sub>1</sub>-C<sub>20</sub> perhaloalkyl, C<sub>2</sub>-C<sub>20</sub> alkenyl, C<sub>2</sub>-C<sub>20</sub> alkynyl, C<sub>1</sub>-C<sub>20</sub> heteroalkyl, C<sub>5</sub>-C<sub>40</sub> aryl, or C<sub>5</sub>-C<sub>40</sub> heteroaryl; and wherein at least one of R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>11</sup>, and R<sup>12</sup> is not H.

6. (Original) The organic light emitting device of claim 5, wherein the emissive layer comprises a phosphorescent emissive material of the formula



7. (Original) The organic light emitting device of claim 5, wherein the emissive layer comprises a phosphorescent emissive material of the formula VII wherein at least one of R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>9</sup>, R<sup>10</sup>, R<sup>11</sup>, and R<sup>12</sup> is aryl or heteroaryl.
8. (Original) The organic light emitting device of claim 5, wherein the emissive layer comprises a phosphorescent emissive material of the formula



9. (Previously presented) The organic light emitting device of claim 5, wherein the emissive layer comprises a phosphorescent emissive material of the formula VII wherein at least one

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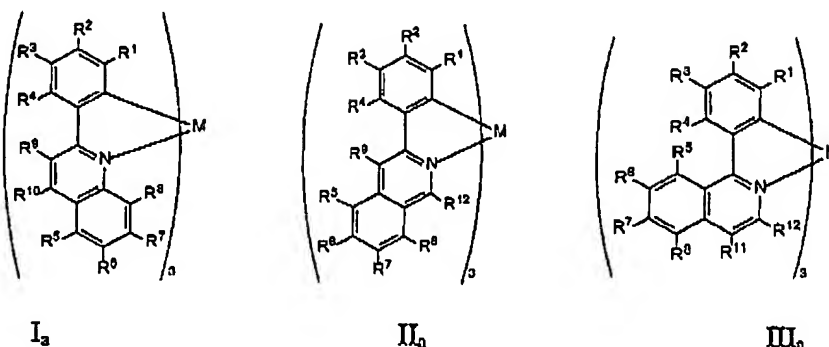
of  $R^1$  and  $R^2$ , or  $R^2$  and  $R^3$ , or  $R^3$  and  $R^4$ , or  $R^9$  and  $R^{10}$ , or  $R^{10}$  and  $R^{11}$ , or  $R^{11}$  and  $R^{12}$ , together form, independently, a fused 5-or 6-member cyclic group.

10. (Original) The organic light emitting device of claim 5, wherein the emissive layer comprises a phosphorescent emissive material of the formula VII wherein M is Ir.
11. (Previously presented) The organic light emitting device of claim 5, wherein the emissive layer comprises an emissive material of the formula VII wherein at least one of  $R^1$  and  $R^2$ , or  $R^2$  and  $R^3$ , or  $R^3$  and  $R^4$ , or  $R^9$  and  $R^{10}$ , or  $R^{10}$  and  $R^{11}$ , or  $R^{11}$  and  $R^{12}$ , together form, independently, a fused 5-or 6-member cyclic group.
12. (Cancelled)
13. (Previously presented) The organic light emitting device of claim 5, wherein the grid comprises a negative photo-resist material.
14. (Previously presented) The organic light emitting device of claim 5, wherein the grid comprises a positive photo-resist material.
15. (Cancelled)
16. (Cancelled)
17. (Previously presented) The organic light emitting device of claim 5, wherein the emissive layer comprises a phosphorescent emissive material of the formula Ia, IIa, or IIIa.

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wherein

M is a metal atom;

each  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^7$ ,  $R^8$ ,  $R^9$ ,  $R^{10}$ ,  $R^{11}$  and  $R^{12}$  is, independently, H, F, Cl, Br, I, R, OR, N(R)<sub>2</sub>, SR, C(O)R, C(O)OR, C(O)N(R)<sub>2</sub>, CN, NO<sub>2</sub>, SO<sub>2</sub>, SOR, SO<sub>2</sub>R, SO<sub>3</sub>R; and additionally, or alternatively, any one or more of  $R^1$  and  $R^2$ , or  $R^2$  and  $R^3$ , or  $R^3$  and  $R^4$ , or  $R^5$  and  $R^6$ , or  $R^6$  and  $R^7$ , or  $R^7$  and  $R^8$ , or  $R^9$  and  $R^{10}$ , or  $R^{11}$  and  $R^{12}$ , together form, independently, a fused 4- to 7-member cyclic group, wherein said cyclic group is cycloalkyl, cycloheteroalkyl, aryl, or heteroaryl, and wherein said cyclic group is optionally substituted by one or more substituents X;

each R is, independently, H, C<sub>1</sub>-C<sub>20</sub> alkyl, C<sub>2</sub>-C<sub>20</sub> alkenyl, C<sub>2</sub>-C<sub>20</sub> alkynyl, C<sub>1</sub>-C<sub>20</sub> heteroalkyl, C<sub>5</sub>-C<sub>40</sub> aryl, C<sub>3</sub>-C<sub>40</sub> heteroaryl, aralkyl; wherein R is optionally substituted by one or more substituents X;

each X is, independently, H, F, Cl, Br, I, R', OR', N(R')<sub>2</sub>, SR', C(O)R', C(O)OR', C(O)N(R')<sub>2</sub>, CN, NO<sub>2</sub>, SO<sub>2</sub>, SOR', SO<sub>2</sub>R', or SO<sub>3</sub>R'; and

each R' is, independently, H, C<sub>1</sub>-C<sub>20</sub> alkyl, C<sub>1</sub>-C<sub>20</sub> perhaloalkyl, C<sub>2</sub>-C<sub>20</sub> alkenyl, C<sub>2</sub>-C<sub>20</sub> alkynyl, C<sub>1</sub>-C<sub>20</sub> heteroalkyl, C<sub>5</sub>-C<sub>40</sub> aryl, or C<sub>3</sub>-C<sub>40</sub> heteroaryl.

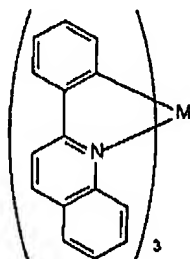
18. (Original) The organic light emitting device of claim 17, wherein the emissive layer comprises a phosphorescent emissive material of the formula I<sub>a</sub>, II<sub>a</sub>, or III<sub>a</sub> wherein M is Ir.

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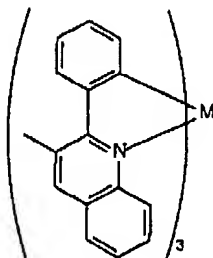
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19. (Original) The organic light emitting device of claim 17, wherein the emissive layer comprises a phosphorescent emissive material of the formula I<sub>a</sub>.
20. (Original) The organic light emitting device of claim 17, wherein the emissive layer comprises a phosphorescent emissive material of the formula II<sub>a</sub>.
21. (Original) The organic light emitting device of claim 17, wherein the emissive layer comprises a phosphorescent emissive material of the formula III<sub>a</sub>.
22. (Original) The organic light emitting device of claim 19, wherein the emissive layer comprises a phosphorescent emissive material of the formula



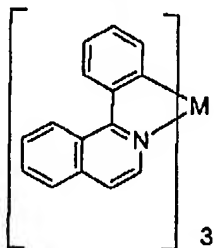
23. (Original) The organic light emitting device of claim 22, wherein M is Ir.
24. (Original) The organic light emitting device of claim 19, wherein the emissive layer comprises an emissive material of the formula



25. (Original) The organic light emitting device of claim 24, wherein M is Ir.

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26. (Original) The organic light emitting device of claim 21, wherein the emissive layer comprises an emissive material of the formula



27. (Original) The organic light emitting device of claim 26, wherein M is Ir.

28. (Cancelled)

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Cancelled)

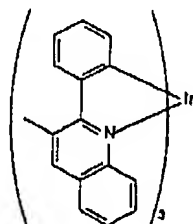
35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Previously presented) An organic light emitting device having an emissive layer, wherein the emissive layer comprises a phosphorescent emissive material of the formula I<sub>c</sub>



I<sub>c</sub>

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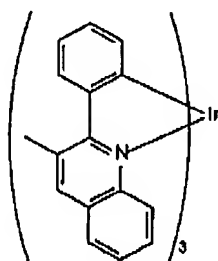
40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

43. (Cancelled)

44. (Previously presented) A compound having the formula I<sub>c</sub>.



I<sub>c</sub>